

## CHEAP FEED NOT ALWAYS CHEAPEST

Analyses Show High-Priced Feeds Are Frequently Most Economical.

### RATIONS ARE SUGGESTED

College Makes Out List of What Dairyman Have Found to Be Practical Under Present Conditions.

By J. A. WALDRON, Extension Agents in Dairying, Michigan Agricultural College.

Most Lansing, Mich.—Recent developments in the dairy industry of the state have given dairymen reason to hope that better times are in store for them during the coming year. Something approaching more equitable prices for milk and butterfat seem to be on the way and unless the signs fail it should pay dairymen to stay in business.

It will be practicable to feed grain or concentrates, though perhaps the supply of these won't be so liberally dealt out to the dairy herd as in times past. But in purchasing grain and concentrates it has too often been the practice among dairymen to judge feed not by its food value or nutrient content but by the price asked for it. Many a man won't pay \$45 a ton for high-class concentrates when he can purchase another sort for \$40, though many tests have amply proved that not infrequently the \$45 feed may be really more economical than the \$40 kind. In making purchases this fall, the dairyman therefore should buy not alone on the basis of price, but on the basis of nutrient content as well.

An illustration in point may make this a little clearer. If a dairyman has a supply of silage and other roughage on hand, and it is a question of laying in some protein feed to balance the ration, would it be wiser to purchase wheat bran at \$40 a ton, or say, cottonseed meal (choice) at \$51 a ton? The answer is simple. "Buy cottonseed," for at these prices a pound of digestible crude protein costs 16 cents in the bran and only 6.5 cents in the cottonseed. The cost of protein in the cottonseed, it will be seen, is only about one-half as much per pound as that in the bran, despite the fact that cottonseed costs \$11 more a ton. In other words, the dairyman who may be seeking a protein supplement for his ration should inquire how much protein he is getting for his money and not merely how much "feed." Where the margin of profit in the dairy business is so slight at times as to be almost invisible to the naked eye, this item is an important one.

With feeds as a whole, recent investigation has proved that protein, the milk-forming nutrient, is cheapest at present time (October, 1917) in cottonseed meal, alfalfa hay, oil meal and clover hay, and in the case of the ready-mixed feeds it has been noted that protein and the total nutrients are without exception cheaper in the feeds containing a higher amount of protein and total nutrients, even though these feeds cost more per ton. Grain, further, should not be thrown away, but this cannot be avoided unless cows are fed individually, that is according to their milk production. Men who have made a go of the dairy business and who have made money despite recent adversities, have found that as a rule one pound of grain per day should be fed to a cow for each two and one-half to four pounds of milk produced per day depending upon quality of milk, or one pound of grain per day for each pound of butterfat produced per week.

Knowing how much to feed, the next pressing question is, "What should we feed?" To meet this inquiry a list of rations which many of Michigan's best dairymen have found will secure results has been compiled. They were planned for a 1,600-pound cow, producing about 30 pounds of 3.5 to 4 per cent milk, or 25 pounds of 4.5 or 5 per cent milk.

First, in the case of the dairyman who has alfalfa and corn silage on hand for roughage, any of the following may be used to balance the ration:

Ration (a)	Daily Feed
Cornmeal	2½ pounds
Oats	2 pounds
Cottonseed or gluten meal	½ pound
Ration (b)	Daily Feed
Barley	3 pounds
Oats	2 pounds
Cottonseed or gluten meal	½ pound
Ration (c)	Daily Feed
Unicorn	5½ pounds
Ration (d)	Daily Feed
Unicorn	3 pounds
Oats	3 pounds
Ration (e)	Daily Feed
Sucrose	7 pounds
Ration (f)	Daily Feed
Butter dairy feed	7 pounds
Ration (g)	Daily Feed
Larrows Big Six	6 pounds
Ration (h)	Daily Feed
Best pulp	5 pounds
Cottonseed or gluten meal	2 pounds

Where mixed hay or corn stover and corn silage are used, any one of the following rations may be fed with them:

Ration (a)	Daily Feed
Cornmeal	3 pounds
Oats	3 pounds
Cottonseed or gluten meal	2 pounds
Ration (b)	Daily Feed
Barley	4 pounds
Oats	3 pounds
Cottonseed or gluten meal	2 pounds
Ration (c)	Daily Feed
Unicorn	7 pounds
Ration (d)	Daily Feed
Unicorn	5 pounds
Oats	3 pounds
Cottonseed or gluten meal	2 pounds
Ration (e)	Daily Feed
Sucrose	9 pounds
Ration (f)	Daily Feed
Butter dairy feed	9 pounds
Ration (g)	Daily Feed
Larrows Big Six	7½ pounds
Ration (h)	Daily Feed
Best pulp	5 pounds
Gluten meal	1 pound
Cottonseed meal	2 pounds
Or if a dry roughage like mixed hay or corn stover is fed, the supplementary ration may be one of the following:	
Ration (a)	Daily Feed
Corn and cob meal	5 pounds
Oats	3 pounds
Oil meal	2 pounds
Ration (b)	Daily Feed
Barley	4 pounds
Oats	3 pounds
Brass	1 pound
Oil meal	2 pounds
Ration (c)	Daily Feed
Unicorn	9 pounds
Ration (d)	Daily Feed
Unicorn	7 pounds
Oats	3 pounds
Ration (e)	Daily Feed
Sucrose	11 pounds
Ration (f)	Daily Feed
Butter dairy feed	11 pounds
Ration (g)	Daily Feed
Larrows Big Six	7 pounds
Oil meal	2 pounds
Ration (h)	Daily Feed
Dried beet pulp (soaked)	6 pounds
Gluten meal	1 pound
Oil meal	2 pounds

### PORKERS MUST HAVE PROTEIN

Skim Milk or Buttermilk Best Supplement to Home Grown Grains.

By PROF. G. H. BROWN, Department of Animal Husbandry, Michigan Agricultural College.

East Lansing, Mich.—While most complaints in the public print within the past year or two have had to do almost exclusively with the high cost of food, the thing that has been bothering the livestock man has been the high cost of feed—feed for hogs, cattle and sheep. And if market quotations mean anything the situation won't be much pleasanter this coming winter.

But while all feeds are abnormally high it must not be thought that commercial concentrates should not be purchased. As a matter of fact, the greater the value of home-grown grains such as corn, barley and rye, the more urgent the necessity for securing a protein concentrate to properly balance the ration. A bushel of corn, fed alone, will produce only from nine to ten pounds of pork, but if it is properly balanced with other feeds one bushel will produce at least 12 pounds of pork.

For swine feeding the best supplement to home-grown grains is skim milk or buttermilk, when they are available. When three pounds or less of milk are fed for each pound of grain 350 pounds of milk are equal in feeding value to 100 pounds of grain. Where skim milk is available for pig and calf feeding it is not necessary to purchase a protein feed.

Of the commercial protein feeds 60 per cent digested tankage is one of the best feeds obtainable for swine feeding—containing a large amount of protein (muscle-building material) and also of ash, for bone building. Sixty per cent digested tankage containing 54 pounds of digestible protein and 12.7 pounds of digestible fat is selling at \$4 per hundredweight. Priced on the basis of protein alone, each pound of protein costs 7.4 cents, which is a lower cost per pound than in any other commercial feed. Unfortunately tankage is suitable for swine feeding only, and then only in limited amounts in combination with the grains rich in carbohydrates as corn, wheat or barley. In combination with the above grains not more than one-tenth part of the ration by weight should consist of tankage.

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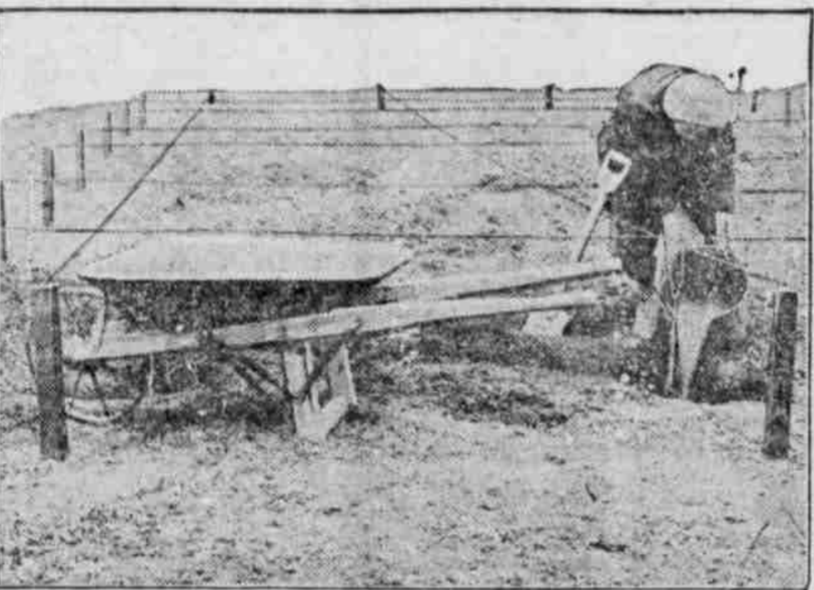
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Best pulp	5 pounds
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Where mixed hay or corn stover and corn silage are used, any one of the following rations may be fed with them:

## LOW-HEADED TREES HANDY FOR ORCHARD

Plant trees but one year old. You can head them as low as you desire, and in these days of spraying you must have low-headed trees, and low heads are better in many respects. The stems are soon shaded and protected from sunscald; they do not blow over so badly, and in sleet storms in winter the ground catches the limbs before they can break. They are so easily harvested that many large orchardists are now planting only this kind. The illustration shows how small a tree can be planted and how low pruned. The first pruning of the apple should be done when the tree is one year old. Cut back to within two or two and one-half feet of the ground. The young tree will then throw out small shoots from the ground up. When these are two or three inches long, all should be rubbed off except from five to six of those near the top, which are left to form the head of the tree. The second pruning consists in cutting these back to about twelve inches. Two year

old trees purchased from the nursery are usually headed back the first year, and come with these first side shoots. In such cases, they should be shortened as above stated. The third year the new shoots which are left to form the main head of the tree should be shortened back to about 16 inches. At this time it is also necessary to remove some of the side shoots in order to keep the growth from becoming too thick. Pruning the fourth season is similar to the third. The shape of the trees depends largely on the pruning which is given the first four years, so the work should be carefully done. After the fourth year there is not much need to shorten back the main branches unless one has grown much longer than the rest. In such cases, in order to preserve the shape of the tree, they should be made as nearly even as possible. All the pruning after this consists mainly in keeping the tree thinned out and also dead and interfering branches removed.



PRACTICAL PLAN FOR LAYING OUT ORCHARD.

## INFORMATION PICKED UP IN THE ORCHARD

Paying Proposition for Every Farm—Any of Common Fruits Grow Successfully.

If the tops of your trees are nipped by excessive cold this winter do not chop down the trees at first sight. Wait until the leaves start, prune off all dead wood and cultivate the ground thoroughly. This will put new life in your trees.

Some people seem to think that in order to spray their orchards they must have a big two-horse outfit and pay out a lot of money to start. Nothing of the kind! An orchard of 100 trees can quickly be sprayed by a barrel sprayer set on a sled, drawn by a single horse.

Scraping out the dead wood and filling the cavity with cement will be the means of saving valuable trees that would otherwise be destroyed by rot.

We cannot paint peaches a nice lustrous color without a liberal use of potash.

Plow the peach orchard in the spring and keep down the weeds and grasses until September, then sow rye or crimson clover to plow under next spring. Elevated sites are desirable for peach orchards; some of the oldest peach trees are on the tops of hills.

The application of too much fresh manure stimulates an unhealthy growth of wood and leads to winter killing of many of the peach buds.

A few mulberry trees set out around the fruit orchard will divert the attention of birds and afford a windbreak for the fruit trees.

Poultry and plum growing make a nice combination for the small grower who wishes to make use of his poultry yards.

The human eye is the great fruit buyer and we must put our fruit up in neat attractive packages if we care to obtain the best prices on the market.

A small orchard is a paying proposition for every farm. Fruit raised at home is better than that purchased from some other man's farm or from a fruit stand.

Any of the common fruits grow successfully on almost every farm. Apples, pears, peaches, plums, cherries and grapes should be the principal fruits.

The orchard should be on an elevated location. It is not wise to set trees in a "flat." In low places late frost often kills fruit.

Soils should be carefully selected for the orchard. Select soils best suited to the fruits planted.

Prepare the soil thoroughly before planting. The best method is to break as deeply as possible and follow with the harrow in order to pulverize.

It is always best to purchase trees direct from a reliable nursery that is inspected regularly by state officials. It is not desirable to deal with agents.

Trees are propagated principally by budding and grafting. Seedling trees are undesirable, as they seldom produce good fruit.

When planting trees, remove all injured limbs and roots. Holes in which trees are placed should be large enough to allow the roots to take natural positions.

An application of fertilizer often means the difference between a good crop and no fruit.

For the first two or three years after setting the trees, two or three rows of any of the low-growing crops can be grown between the rows of trees. Grain should always be avoided.

Leguminous cover crops, sown regularly, will take the place of a large amount of the fertilizer necessary for the orchard. Sow them in September and turn in early spring.

Pruning carefully every year will prolong the life and increase the value of any fruit tree.

The diseases of the trees and fruits are very numerous. The only method of controlling them is by spraying regularly every year.

The best varieties should always be selected for the orchard. Select them in such a manner as to provide fruit the entire year.

## PREPARING SEEDBED FOR ALFALFA PLANT

Plant Cultivated Crop Year or Two Earlier and Keep Soil Well Conditioned.

(By M. A. REESON, Department of Agronomy, Oklahoma A. and M. College, Stillwater.)

In preparing the seedbed for alfalfa you should begin a year or two before you wish to seed by planting a cultivated crop, keeping the ground well-cultivated and free from weeds. Corn is a good crop to precede alfalfa.

The critical period of alfalfa is the first six weeks of the life of the plant. The ground should be plowed early and deep. It should be free from weeds and as free as possible from weed seed.

It should be well tilled, but firm up to the surface when seeded. Fall seeding in September without a nurse crop is considered the surest method to follow.

However, if there is not a favorable season and sufficient moisture in the fall, you may sow at corn or cotton-planting time in the spring. From 12 to 15 pounds of seed per acre is ample if the seed is clean and strong.

When it is sown with a grain drill attachment, on well-prepared seedbed, and when sown carefully and not too deep, from ten to twelve pounds of seed is quite sufficient. The seed is small and does not need to be sown too deep—just so you get it into the moist dirt.

Thousands upon thousands, millions and millions of weed seeds are self-sown each summer, when these weed seeds are left undisturbed. Some of the most numerous of these seeds are the ragweed, snapdragon, dock, barnyard grass, lamb's quarter, plantain, thistles and tumbleweed.

Their growth next year means more labor in the cultivation of crops, not only for ourselves, but for our neighbors as well. A little extra hard work in keeping such plants from seeding this year will save us and our neighbors much labor next season. We know this to be true, of course, but sometimes we put off cutting weed pests too long. Strange how fast the pesky things do grow and go to seed!

## WEED SEEDS ARE SELF-SOWN

Some of the Most Numerous Are Ragweed, Snapdragon, Dock, Barnyard Grass and Tumbleweed.

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## Fads And Fancies Of Fashion

The collection of suits presented for fall is really superb. Good taste dominates them in styles and color and in materials and trimming. They are wonderfully tailored. Most of the new wool goods have a soft, velvety finish, and certain fashionable colors appear at their best in surfaces of this kind, like tan, beige, castor, gray and wine.

The quiet of the colors fashionable for fall makes room for all sorts of clever eccentricities of cut, and the smartest tailors have taken advantage of this opportunity to show how ingenious they can be. They think out

with the radiance of pearls and diamonds. It is to be worn with a scarf of maline over the arms and shoulders.

Nearly always, with such splendid materials, the designer confines herself to the simplest methods of using it. The bodice in this instance appears to be a straight piece of the material wrapped easily about the figure. The skirt is very full, but the weight of the passementerie holds it close to the figure. It is draped at the sides as demonstrated in the picture. For a dancing frock it may be caught by the fingers and lifted like a pair of wings.



THE SORT OF SUITS WE WANT.

the best lines for the slender figure and the best lines for the stout figure and proceed to work revolutions in the appearance of their patrons. The plump lady looks trim and the thin lady looks graceful, having lost her angles in a new and innocent-looking tailored suit which has been carefully designed to conceal them. They go on their way rejoicing after they have selected the styles made for them.

A study of the suit pictured above will reveal what the art of the tailor can do by way of achieving the unusual and interesting while preserving the simple, graceful lines demanded by the mode. The coat is cut with hanging panels, each finished at the bottom with a band of fur. Plaids, set in at the back, dispose of the waistline in the best possible way and concede the right of fashion to demand that backs be made interesting. There is a collar of fur, and deep plain cuffs of the cloth attract attention to their shapeliness with big bone buttons set in a row.

The skirt is plain, leaving intricacies

of the bodice is supported by strands of rhinestone over the shoulders and joined to the skirt by an easy girdle of the material that conforms to the lines of the waist.

Flat tassels of crystal beads finish the joints of drapery at the sides and at the bottom of the skirt. White satin slippers and white silk stockings, and a band of brilliants about the hair, are to be worn with this frock, and they should be without ornament. The scarf of tulle about the shoulders—not shown in the picture—veils the brilliance of sequins and rhinestones and adds beauty to the gown and to its wearer.

Julius Bottomley

Drawnwork for Undergarments.

Flat decoration continues to be the favorite trimming for the new French under apparel. In a shipment just arrived from Paris, both voile triple and



LIKE A GORGEOUS BUTTERFLY.

of cut and making to the coat. After all, it contrives to escape being fussy and to preserve the clean lines that belong to the tailor-made.

This is one of those brilliant evening gowns that transform their wearers into the semblance of a wonderful butterfly. It is made of net, with a petticoat underneath of net and still another of thin and lustrous satin. The dress is almost incrustated with straight bands of mother-of-pearl sequins and little rhinestones that reflect the light

lines have been treated in this way. There are many different stitches in this work, which is really drawnwork.

The one most commonly seen is the "fleur" stitch, a kind of delicate punchwork that forms a lacy web and is an excellent background for the design, either in embroidery or more commonly of the solid material outlined in a fine white thread.

The designs are usually conventional flower patterns, rather large, or else merely geometrical

## INTERNATIONAL SUNDAY SCHOOL LESSON

(By REV. F. B. FLEWELL, D. D., Teacher of English Bible in the Moody Bible Institute of Chicago.)

### LESSON FOR OCTOBER 7

#### PSALMS OF DELIVERANCE.

LESSON TEXT—Psalms 35 and 124. GOLDEN TEXT—They that sow in tears shall reap in joy.—Psalms 126:5.

These Psalms breathe the spirit of the true patriot. The Psalmist sees his afflicted country suffering for the sins of the people, prays for their restoration to the Divine favor, and with the eagle eye of faith anticipates the joyful day of spiritual and temporal blessings because of restoration to the Divine favor. Doubtless such patriotism would be pleasing to the Lord on the part of us all.

Psalms 35, 1. Praises for Mercies Received (vv. 1-3).

Praise is given for (1) Deliverance from Captivity (v. 3).

He had in mind the specific mercies of a given time; perhaps it was one of the oppressions of the Philistines from which they had been delivered.

(2) Forgiveness of Sin (vv. 2, 3).

"Thou hast forgiven the iniquity—covered all their sin." God's restoration was the proof that he had pardoned. Great indeed was the sin of Jacob, but God's forgiveness was greater. He is peculiarly a God of mercy. Having forgiven the sins his anger is taken away. He stayed his hand from the judgment which would have justly fallen, to show his mercy.

II. Prayer for Restoration From Backsliding (vv. 4-7).

He knew how worthless the outward blessings of the Lord would be unless the people inwardly turned to the Lord. He, therefore, besought the Lord to give them the greater blessing, that of a change of heart. Without the change of heart forgiveness would be futile. A change of heart can only be by God's help.

(1) That God would turn the hearts of his people toward himself (v. 4).

Knowing the people's utter helplessness to turn to God, he cried out to God to save them by turning them to himself. He knew that God's anger could not turn from the people as long as they were impenitent.

(2) That God would take away the very remembrance of their sins (vv. 5-7).

(a) The ending of his anger (v. 5). The desire seems to be that he would wipe out the very marks of his displeasure by not longer allowing punishment to be meted out to them.

(b) The return to the people's joy (v. 6).

Their joy could only be realized through a revival from God. The Psalmist now becomes more bold in his requests.

(c) Shall show them mercy (v. 7). "Make it visible," is his cry. God's judgment was most real. His desire is that his mercy would be just as real.

III. Exultant Anticipation (vv. 8-13).

Having spoken the sentiment of the repentant people, the poet expresses confidence of the Lord's response. So faithful is God that those who sincerely pray to him can go forward with the assurance of petitions granted.

(1) "He will speak peace" (v. 8).

He knew that a gentle answer would come, but its continuance would depend upon the fidelity of the people. Turning to folly would provoke again his wrath.

(2) Will bring his salvation near (v. 9).

Only as his salvation was near could glory be in the land.

(3) Devise a way by which "Mercy and truth." "Righteousness and peace," may be united (vv. 10, 11).

He did not suggest a way. He may not have known it. Faith now sees the way in Christ. In him such a union has been blessedly effected.

(4) The land shall become fruitful (v. 11).

When sin is removed, temporal prosperity shall follow. Earth's barrenness is due to sin. When the curse is removed fruitfulness shall follow.

(5) Righteousness shall be the guide of his people (v. 12).

In that golden, glad age God's righteous ways will leave a track in which his own may walk with security.

Psalms 120.

I. The Fact of Zion's Deliverance (vv. 1, 2).

(1) By whom (v. 1). The Lord.

(2) Effect of (vv. 1, 2).

(a) The people were scarcely able to believe it. So sudden and unexpected was their deliverance that it seemed to them as a dream. They expressed their feeling in joyful laughter.

(b) The heathen noted their deliverance as marvelous, and ascribed it to God (v. 2).

Song and Prayer.

II. The Song of the People (v. 3). They ascribed their deliverance to the Lord and expressed their gratitude in singing God's praise.

III. The Prayer (v. 4). The people cried to God to visit their restoration with fruitfulness, even as the streams from the South spread out and make a country fruitful.

IV. The Promise (vv. 5, 6). Though the people were still obliged to suffer the consequences of their sins, they were encouraged to go on in sowing though in tears, as the reaping would bring joy.